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**Ampeer subscriptions are \$10 a year U.S. & Canada and \$17 a year world wide.**

**The Next Meeting:  
Thursday, April 4, 1996  
Dublin Community Center, Union Lake Rd.  
Union Lake, MI - Everyone Welcome!**

**R/C Pilots Handbook  
Basic to Advanced Flying Techniques from  
the Pros**

Air Age Inc.,  
251 Danbury Rd.,  
Wilton, CT 06897  
<http://www.airage.com>  
Softcover - \$19.95

by Ken Myers - editor Ampeer Newsletter  
102575.3410@compuserve.com  
[http://ourworld.compuserve.com/homepages/i\\_fly\\_epower](http://ourworld.compuserve.com/homepages/i_fly_epower)

This is a quick preview/review of an exciting new book by the publisher of *Model Airplane News*. It is an assembly of articles that have previously appeared in MAN and is well worth adding to your, or your club's, library. The book is setup in a very logical order, and I'll go through it high-lighting each section and chapter (article).

**BASIC TECHNIQUES (Section 1)**

**Getting into R/C Planes** - David C. Baron - sound first advice for all, but scant mention of e-flight, only under "powered gliders". It would have been nice to have added a sidebar on e-power.

**How to Use the Rudder** - Roger Post Jr. - very informative article on using rudder with

3- & 4-channel setups. Good illustrations of "how things work". Applies to all types of aircraft.

**How to Avoid the Stall/Crash Quandary** - Dan Parsons - Covers stall causes and spin recovery. The pilot always stalls the plane.

**The Merry Modelers' Mindset or Training one's brain to minimize stupid mistakes is easier than building a new plane** - Roy L. Clough Jr. - Lighthearted look at how to "think in the proper way" while flying R/C. Can be helpful for the beginner - the pros have been thinking like this and never really realizing it.

**How to Avoid Crashing** - Roger Post Jr. - Paying attention to the details mentioned here can keep you from rebuilding or replacing a plane. Engine problems don't usually apply to us, but the rest sure do.

**Intermediate Flying Skills (Section 2)**

**Tail-Dragger vs. Trike Gear** - Dan Parsons - This is really a great piece on how to set up tail-draggers correctly with good photos and diagrams.

**The Multi-Engine Experience** - by Nick Ziroli Sr. & **Multi-Engine Techniques** - by Dan Parsons - cover flying multi-motored

## Ampeer

**What's  
in this  
issue?**

**Book Preview - News from Washington D.C. - Heli News from Germany - Weight Reductions - E-Nats Procedures - News from Steve Gurley - March EFO Meeting - KRC oops by me! - HP InkJet tip**

aircraft. They have a few good hints but we've already taken care of the biggest problem for multi-motors - THE Engines!

**Maximizing Engine Performance** - Dave Gierke - don't skip all the stuff in this chapter. Skim carefully since there are some good hints on how to use any prop turning source to its maximum.

**Fine-Tune Your CG by Flight Testing** - Larry Renger - This one applies to all types of models and all types of flying. A real must read.

**How to Slip an Airplane** - Roger Post Jr. - Got to get into a short landing mode? Here's how.

### Aerobatics (Section 3)

**Hot-Dogging it with Frank Noll Jr.** - Frank Noll Jr. and Dwight Doench - A how to on most the aerobatic maneuvers you'd ever want to do, as well as setting up your plane to do them.

**The Art of Low-Power Aerobatics** - Keith Shaw - Okay, so this is the one I bought the book for. How to do all the "hot-dogging" that Frank Noll Jr. talks about on "low power". Another landmark Shaw article.

**Hotshot Flying - Stinger Style** - Stinger Wallace - shows how brave you can get with a disposable airplane.

**Fun-Fly Competition** - Jerry Smith - specialized planes in a specialized competition. Several e-fliers are campaigning their e-versions of these planes and just having a great time with them. Right Doug Ingraham?

**How to Trim Sailplanes for Aerobatics** - Jef Raskin - hey, this is for us too! Put a motor on an Anobat II and see what you get!

### Scale

**Scale Competition Fly Tips** - Terry Nitsch - want to compete with the "glow guys" and beat them, follow Terry's tips. You've already got a leg up with realism of flight!

**Scale Bombing Techniques** - George Leu - not really sure why this article is in here. Not as "overall" appealing as the rest.

### Racing (Section 5)

**Go Fast and Turn Left! Secrets of giant-scale racing** - Rob Wood - Big thrills, big excitement, and big money. See how the other half lives.

**Enjoy .40-Size Pylon Racing** - Dave Shadel - how to get started with any kind of racing. The Q-500 racers make excellent sport electrics!

**So You Want to Try AT-6 Racing** - Dennis Crooks - one class giant-scale racing.

**Speed 400 Pylon Racing** - Tom Hunt - another reason I bought this book. Tom goes over the kinds of planes and equipment used, the course set up and requirements. Great racing at a down-to-earth price!

### Soaring (Section 6)

**How to Soar with the Eagles** - Mike Lachowski - okay flatlanders, want to win All Up Last Down? Just want to improve your soaring skills. This will help. Lots of info on thermals.

**Your First Glider Competition** - Dave Garwood - the how and why of glider contests. I particularly liked "Make Your Own Luck" and "Practice, practice, practice".

**Slope Soaring** - Dave Garwood - great how to use the lift generated from a "hill". Some electrics make good slope soarers and the reverse is also true. If you're near a "slope", you can fly without ever charging!

**Flying F3B** - Dennis Phelan - learn how this multi-task event is flown and how it is similar to F5B, the electric version.

**How to Handle Hand-Launched Gliders** - Brian F. Agnew - Lots of e-fliers have one of these around just for tossing while charging. Some also make good small electrics to fly from tight spots.

### Special Interest (Section 7)

**Flying R/C Combat** - Greg Rose - this is a very exciting phase of the hobby, but I haven't figured out how to make an e-power version competitive.

**Tips from an F5B World Champ** - Jerry Bridgeman - this is the "big boy" event of electric. Jerry covers equipment and techniques in this article. Very impressive flight performance.

**Sport Fun Fly** - Dan Luchaco - how to not "beat yourself" at fun fly events

**Flying Class A and B Electric Sailplane Events** - Tom Hunt - another good reason to purchase this book. Tom covers the rules, techniques and equipment.

**Flying Old-Timer Model Aircraft** - Bob Aberle - Bob covers both "glow" and e-power and how to fly competitions with these pre-1956 designs. Actually three "categories of ages". Check them out in this article.

**Basics of Flying Ducted Fans** - Bob Fiorenze - exclusively for gas fliers, but by one of the world's top ducted fan guys. Yes, I read other columns beside the e-power ones!

### Useful Addresses

The last two pages are full of useful addresses and phone numbers.

It's quite a book, with lots of information on lots of topics. The writing styles vary from straight forward to quite humorous. That makes the pace of this book a pleasure to read. It's sort of like changing channels from a drama to a comedy. It certainly is not a book to be read in any order. You get to pick and choose - kinda interactive. And yes, someday, when I have nothing to do, I'll probably take a read of the bombing article!

**E-Flying Near Washington, DC**

from Dereck Woodward

dwmstw@aol.com

Hi there Ken,

I was just wandering around burning free hours on GNN and arrived at your pages via Tower Hobbies. My "real" Email address is dwmstw@aol.com, by the way.

I like the info. I'm a pretty long time modeller who flies about anything from RC up to indoor rubber, but electric RC has been occupying more and more of my outdoor attentions in the last couple of years. I'm English, married to Sue, from N. Carolina and have only lived in the US for two years. One of my other occupations is a monthly sports column in the English mag "Radio Control Model World" - about smaller sports models mostly. Quick plug - if any of your buddies are **interested in International Fame**, I'm always in need of photos and stuff for the column! Wierd, Oddball, Wonderful - they all have been in "Weekend Pilot". As photos don't travel well - the snail mail is 11159 Captains Walk Ct., N. Potomac, MD 20878. Definitely do electric flight as well!

My best models to date - the Ace RC "Puddlemaster" and Andy Clancy's Electric Lazy Bee. Both really perform on low cost can motors, perform like the makers say - which isn't a bad deal all round.

The Puddlemaster is my second - I had one of the first in England back in 1993. On a Graupner Speed 600 BB 8.4V can motor and six or seven cells, she flies great. Water handling is superb, or take the floats off and hand - launch for over land flights. She will even do a touch and go off damp grass. Mine has mini servos and a Futaba 114 ESC / BEC. Never fails off water and mine has about the best performance of most with the cheapest motor.

The E Bee is another stunner. Have used everything from the Leisure gearbox unit to an Astro 05 geardrive. The latter is awesome but excessive. Best flight time was 19 minutes 40 seconds with a lot of thermal assistance. Will do loops, slowish rolls and inverted! Flies off water too - the Clancy floats are very efficient. The Bee structure is mostly holes with skinny sticks around the edges, but is super tough and actually easy and fast building if the instructions are followed.

It also flies well with three Graupner Speed 400 7.2V's, direct drive on 6 x 3's and a single seven cell pack! One in the nose, two underslung at the first rib.

Got to go design a model - this is my "teach myself DesignCAD course". Great fun, but a great time absorber too.

*(Thanks Dereck. Hope some of you send him photos and info on your latest project. km)*

## THE ECO-Family

An electric helicopter system that will change the modellers world.

from Wolfgang S. Nitschmann

WSNITSCHMANN@t-online.de (W.S.Nitschmann)

Ikarus did not reinvent the wheel - they just reorganised a few facts in order to ease the start for modellers who intend to enter this hobby but do not like to spend \$1700US in order to get an idea about helicopters.

The ECOLite is a 2-ch helicopter that uses aileron and elevator to fly, just like an ordinary fixed wing. Unlike other products the ECOLite can be upgraded to use pitch control and speed control with a 4-ch radio. Than it even starts from the ground and flies loops and rolls. The ECOLite comes with a motor. Using a 2-ch radio, a 6-cell buggy battery and a standard delta peak charger you are up to \$500US only. It certainly eases the decision to start with the heli hobby at the cost of a good buggy.

The modeller that starts with the ECOLite can upgrade his kit, at minor costs, to a full helicopter, the ECO8. The conversion kit will be around \$120US and you'll need a 4 ch radio. The included mechanical mixer allows the use of an ordinary 4 ch radio without expensive and complicated microcomputer systems. Having one, you can omit the mixer and use ccpm at 4x900. With the selected cells and the IKARUS duration motor, 20 minutes flight time is not a problem. We don't talk about "dune" flight, it is hovering and flying in the backyard!

Another kit at about \$90US converts the ECO8 to the ECO16. 1200 mm rotor diameter are powered by 14-24 cells, being 2x7 to 2x12 cells in line. An Ultra-type motor is responsible for tremendous results. There will be a direct competition against a gas powered heli in April.

The ECO8 and 16 have full 3D capabilities. A video will be available in April as well. All three ECO's use the same chassis and rotor head. That mens cheap and available spare parts.

There are lot's of discussions on the motor used. To tell the truth, IKARUS tested about 150 different motors, only 3 are left to power the ECO8, just 2 to power the ECO16. Customers are invited to try different types, but it seems reasonable to rely on the facts provided by the manufacturer. They may not want to sell 2nd class stuff if they know better.

Talking about electric systems weight still is a sensible subject and the rumors about "1 gr more weight is 1 sec. less flight time" is a common word that made a cartoon lately. IKARUS provides all necessary components at an ultra light weight. I like the solid state gyro at 19 gr and 32 mA current drain, which should be available at \$220US soon.

17 pinions allow experiments with motor speeds and tailrotors. The manual is reference class, it will be difficult to find something better.

Let's start thinking practical: there are fewer people that find the spare time to go for an "out to nowhere" airfield. Especially for the would-be-modeller in larger cities, the electric helicopter will be an alternative to the gas-powered machines. You are able to greet your neighbours and still have a lot of practice. It saves time and fuel costs to an R/C airfield. Think about electric systems. Old reservations coming from unsophisticated Japanese designs are no longer valid. A lot of water was running down the river since ...

By the way, Schramberg, the location of IKARUS, is in the heart of Europe, in the black forest, south of Stuttgart. That's where all parts are produced. Spares are just a call away. You don't have to wait for a ship to come soon.

#### Received Even More Info on This Heli

The model Hobby Lobby is selling is the "father" of the ECO-family. Ikarus started making a helicopter that should perform better than any other heli in the market. Here in Germany the R/C Heli industry suffers from a lack of interest or just empty pockets. Having a working heli and converting it into a working 2-ch model is just a short way. There is this Hyperfly from Kyosho that operates fairly similarly, but without any chance of upgrading or increasing performance. It has been the Ikarus idea to create something smooth, easy and affordable to motivate the starter to join the hobby. The "how-much-is-a-helicopter"-customer will now get a 500\$ answer instead of 1500\$.

The ECO-family is brand-new, at least as a family. Ikarus finished the Ecolite and the Eco16 just a few weeks ago, after heavy trials and calculations. The first presentation to the public happened on the Nuremberg Fair this month only and that's the first occasion for Hobby Lobby as well. They are not very interested in the idea for the moment, but I hope that the increasing demand will send them in that direction.

**The technical data:** Ikarus is spending a lot of money and time in improving the product. The new flight performance of more than 20 minutes is a question of better motors, light weight components and well treated batteries. In fact, what they did is using the carbon chassis, saving a few g here and there but nothing a normal modeller couldn't repeat on his own. They were using a performance motor as available from Hobby Lobby and the new Ikarus solid state gyro at 19 g only. No case had been used on the receiver. The standard wooden blades were mounted. They used 2x10 Sanyo 1400 mAh batteries giving 12 v and nearly 3000 mAh. Pitch and speed had been adjusted with an amp meter to an overall power consumption of less than 7 amps during hovering that is probably 5 amps in ordinary flight. Just repeat this procedure and you are up to 20 min. flight

time! You can use 2x10x1800 mAh sub-c type as well. With a good charger you will have about 4400 mAh capacity but the extra capacity will be used by the 450 g extra weight!

At the moment they are working on 30 minutes are they are getting pretty close.

I have to admit that going for 3-d flying, the flight time went down to 11 minutes only. We made a video for the Nuremberg Fair with 3-d sequences and 11 minutes was the maximum. Can an EP-Concept fly on its back and if yes how long? I never saw an EP flying for more than 6 minutes if used carefully.

Best regards - Wolfgang

### WEIGHT REDUCTIONS FOR ELECTRIC CONVERSIONS

by Rob Campbell

from the March 1996 issue of the *Electric Model Flyer*  
Newsletter of the Electric Model Flyers of Southern Ontario  
edit by: Rod Campbell, 34 Hopkins Ct., Dundas, Ont. L9H 5M5  
Canada

When embarking on a project to convert an available model design originally intended for glow engine power, one initially makes an attempt to evaluate the suitability of the kitted aircraft for electric conversion. The power system(s) one has available, anticipated wing loading, and desired power per unit of weight are some of the primary considerations. Once a particular kit is selected, more detailed work to accommodate the electric power system can begin. Most of the modifications can be pencilled in right on the plans, for ready reference during the construction phase. In almost all cases, some sort of weight reduction exercise is in order to at least partially offset the added weight of the electric power system - the motor battery in particular.

If you are past the kit trainer stage, but you are not yet a scratch builder (like me!), here is an example of what can be done with a standard glow engine kit.

Briefly, here is the design process for the aircraft:

**Motor available:** - Astro 40G (geared)

**Type of aircraft desired:** - Seaplane

**Readily available candidate:** - Ace Seamaster 40

**Published Statistics for Glow Engine version:** - engine required 2-cycle .40-.45 or 4-cycle .60, weight 7 lbs, wing span 59.5", wing area 725sq in

Note that the weight (7 lbs.) is rather high for a glow kit of this size. From examination of the kit materials, the following was observed:

- materials were very heavy - mostly ply construction - this and the large fuselage hull will contribute greatly to the weight of the model - this also is where the majority of the

weight reduction potential lies

- the wing leading edge is actually a heavy cardboard tube - although replacing this would reduce the weight of the wing, it was decided this would be more work than the builder wished to tackle!

Rough calculations were then made to determine the airworthiness of an electric conversion:

**Estimated weight of electric version:** - 8 lbs (this assumes an airframe weight reduction of approximately 1 lb. is possible)

**Calculated Wing Loading** = weight + area = 25 oz./sq.ft. (A little higher than desired)

**Using "Cube Wing Loading" better compensates for aircraft size:**

- Cube \Wing Loading = 11.3 oz/cu ft. (A little high) Between 9 and 10 oz./cu.ft. would be better.

**Note** Cubic Wing Loading is an empirical formula that takes into account the affect of aircraft size on wing loading. As a general rule larger aircraft can handle higher wing loading than smaller aircraft. Cubic wing loading = weight of aircraft in ounces divided by the wing area in square feet to the power of 3/2. (Scientific calculator required!)

**Power to weight ratio for a standard Astro 40 power system in this aircraft** = 425 - 450W/8 lbs. = 53 - 56W/lb. (Acceptable)

This model will fly, but increased wing area and/or reduced weight will improve its flight characteristics and make it easier to handle. Increasing the wing area to 800 sq.in. brings the Wing Loading down to 23 oz./sq.ft. and the Cubic Wing Loading down to 9.8 oz./cu.ft.

The actual measured wing area from the plans (not including wing tips) = chord X span = 12" X 59.5" = 714 sq in. Note that this is a little less than the published value of 725 sq in.

Rearranging the equation above to solve for span:

$$\text{Span} = \text{Area}/\text{Chord} = 800/12 = 66.7''$$

Therefore, to achieve a wing area of about 800 sq.in. will require increasing the span by 3 to 3 1/2" per side. This was done by simply increasing the rib spacing. Since the wing is now larger and has more inertia in yaw, it wouldn't hurt to increase the tail control surface areas to compensate. This can be done using the highly scientific "looks about right" approach.

Since this airplane is on the large size for a 40, I also decided a little more power, say 60 to 65W/lb. would be nice, so the cell count was increased to 20, with an anticipated power in increased to 470 - 520W depending on the propeller used.

Even though this will be a fairly fast flying airplane, a gearbox is favoured over direct drive since the cell count has been increased and good thrust at take-off is desired. Even with good propeller selection, reduced propeller efficiency can be one of the results of higher cell count/direct drive combinations.

A list was then created of weight reduction ideas, with items such as:

- holes in wing ribs
- replace main fuselage ply sheeting with balsa
- replace ply bulkheads with balsa, etc.

Many of these ideas were tried. Another approach to lightening was to make structural members from balsa sandwiched between thin Lite-ply. This was used for the motor pylon and the servo rails.

The following data was collected during the build. You may find it useful as a guide to the most worthwhile lightening opportunities for some kits.

Note that the large effort to remove material from the wing ribs yielded only a small weight reduction. In contrast, it was probably no more effort to recut the fuselage sides from medium balsa, yet this resulted in the single largest weight reduction. Some other weight reductions were made on the fly, but the builder lacked the discipline to record them all!

The table summarizes weight reductions achieved in ounces. The weight reductions are sorted in descending order:

CHANGE	BEFORE	AFTER	SAVING
Make Fuse sides from balsa	9.4	4.0	5.4
Make Hull Bottom from Balsa Ply	5.9	2.5	3.4
Make Pylon from 1/16 ply with balsa core	2.8	1.3	1.5
Make fuse formers from balsa	2.1	0.8	1.3
Holes in wing ribs	3.8	2.5	1.3
Make tip floats from balsa	2.0	0.8	1.2
Make wing trailing edge from light balsa	2.2	1.3	0.9
Make top rear of fuse from balsa	1.2	0.4	0.8
Make wing tip parts from balsa	1.2	0.5	0.7
Make top front of fuse from balsa	1.1	0.5	0.6
Shorten Plastic motor pod by 2 in.	3.8	3.2	0.6
Make motor mount with balsa construction	1.2	0.7	0.5

CHANGE	BEFORE	AFTER	SAVING
Make tip float skin from 1/16 balsa	0.8	0.4	0.4
Use balsa laminate main wing spars	3.7	3.4	0.3
Make built-up fin	0.9	0.6	0.3
Make bow retainer from light balsa	0.3	0.1	0.2
Make built-up elevator	1.1	0.9	0.2
Make built-up rudder	0.4	0.2	0.2
Light ply/balsa laminate nosegear bulkhead	0.3	0.2	0.1
TOTALS (oz.)	44.2	24.3	19.9

There are two ways of looking at this chart. One is to say that only a few changes can contribute greatly to weight reduction. Another view, however, is to say that a lot of small weight reductions can add up to a significant weight reduction. I would summarize by saying that even the small weight reductions are worthwhile if they are easy to do. Parts that are already small and light can be left untouched.

In summary then, about 20 oz. was trimmed from the airframe of the standard glow kit. This undoubtedly improves the flight performance of the aircraft considerably. Of course, some judgement is required to apply these changes without weakening the airframe in an undesirable way.

Some of the weight reductions are small and, individually, may not seem to be worth the extra effort. However, adding them together makes a very significant contribution to the weight reduction effort. The actual final weight of this modified kit is a little over 7.5 lbs. If you have some other weight-reduction ideas for those of us who like to convert glow kits to electric, I would like to hear from you.

Till then, happy building!

### 1996 Electric Nationals' Procedures July 20, 21 & 22

Site: Headquarters Flying Field, Muncie, IN  
For More Information Contact:

Ken Myers, NEAC director, E-Nats coordinator  
1911 Bradshaw Ct.  
Walled Lake, MI 48390  
(810) 669-8124

CompuServe: 102575,3410

InterNet: 102575.3410@compuserve.com

WEB site:

[http://ourworld.compuserve.com/homepages/i\\_fly\\_epower](http://ourworld.compuserve.com/homepages/i_fly_epower)

Dear Contestant;

Please note that the following procedures will be in effect for all events flown at the 1996 Electric Nationals, Muncie, IN from July 20 through July 22. These procedures were developed with the input of electric fliers from all over the United States. They apply equally to all contestants.

#### EVENT SCHEDULE:

**Saturday, July 20, 1996**, AMA Class-A Electric Sailplane (AMA Event #610), along with AMA Class-B Electric Old Timer (LMR) (AMA Event #620). Pilot's Meeting @ 8:30 AM, flying from 9:00 AM to 4:00 PM.

**Sunday, July 21, 1996**, AMA Class-B Electric Sailplane (AMA Event #612), along with AMA Class-A Electric Old Timer (LMR) (AMA Event #618) Pilot's Meeting @ 8:30AM flying from 9:00AM to 4:00 PM.

**Monday, July 22, 1996**, Open Fun flying (all day) 9:00 AM to 4:00 PM. Special events to be staged during the day to include: SPEED-400 PYLON RACING, Class 1/2 A Electric Sailplane and Class 1/2A Electric Texaco Old Timer.

**Monday, July 22**, The AMA/FAI electric events (601 F5B Soaring; 602 F5A Aerobatics 603 F5D Pylon) are being scheduled for the Monday, July 22, 1996, if the necessary 10 registrants will attend. It is an AMA directive that these events must be posted, unless relief is granted by the AMA Executive Council. In the interest of saving valuable time, we have posted these events for that date as our obligation.

The Electric Nationals coordinator will be Ken Myers, the NEAC director.

#### INDIVIDUAL EVENT DIRECTORS (ED's)

The individual event director who will be responsible for the pilot's meeting and the conduct of the event. The ED **will be allowed** to fly in that same event, with Ken Myers, or his representative, observing and overseeing the ED's flight.  
Class-A Electric Sailplane -- Tom Hunt, Centereach, NY  
Class-B Electric Sailplane -- Paul Perret, New Orleans, LA  
Class-A Electric Old Timer -- Bill Jenkins, Memphis, TN  
Class-B Electric Old Timer -- Bob Aberle, Hauppauge, NY  
SPEED-400 PYLON RACING -- Tom Hunt  
Class 1/2 A Electric Sailplane -- Bob Aberle  
Class 1/2 A Electric Texaco Old Timer -- Phil Smith

**MEDIA COVERAGE** -- Frank Korman (DEAF Newsletter Editor) has volunteered to prepare a complete article on the 1996 E-NATS for publication in the AMA magazine, MODEL AVIATION.

**BANQUET**

There will be a banquet held on Saturday evening at the Roberts Hotel. There will be a NEAC meeting during the banquet to nominate a new NEAC director.

**GENERAL GUIDELINES:**

(1)- **Hobby industry literature**, received from any and all sources, by any means, **will** be distributed throughout the E-NATS in a designated area, but not passed out to contestants in any NEAC or AMA literature.

(2) **Registration fee** is \$45.00 for the first AMA event and \$10.00 for each additional AMA event. Seniors and Juniors are FREE in AMA events. Trophies will be awarded to AMA event winners. The non-AMA events are FREE! Certificates of accomplishment will be awarded winners on non-AMA events.

**MAIN EVENTS --- DETAILS** (apply to all four 610, 612, 618 & 620) It is the responsibility of the contestant in each event to know the AMA rules regarding the event. AMA rules will be in enforced during all AMA competition. The following is a brief statement of the AMA rules. The contestant is expected to use the rule book for specifics.

(1)- **Class-A** events up to 7 battery cells --- **Class-B** events up to 30 battery cells (AMA rules).

(2) **Three flights per event** ---- no extra or throw away round permitted (AMA rules).

(3) **Maximum flight time** of 8 minutes (precision) including the prescribed limited motor run for that particular event (610 = 45 seconds, 612 = 30 seconds, 618 = 60 seconds and 620 = 45 seconds). **Note:** The majority of the responses wanted to include the motor run - that's how it will be done! or

(4) A **spot landing circle** will be used for 610, 612, 618 and 620. The spot landing circle will be 40 feet in diameter (20 feet radius measurement cord from the marked center of the circle to any part of the model). Landing and stopping within that circle, will award the pilot a bonus of 20 points. **No parts** (this includes prop) may be shed from the model. The model must be in **flying condition** after the landing without needing any repairs, to be awarded the bonus points. If the model flips over on landing, but is still in **flying condition**, the bonus points are also awarded. **Flying condition** is meant to mean that only changing or charging the motor power battery would put the plane **SAFELY** back into the

air.

(5)- You may employ **anyone as your timer**, but be advised that contest officials will be randomly checking times. If any differences are found, the contest official's time becomes official

(6) A **basic questionnaire** will be provided to each registrant to supply the details of the model. The questionnaire may be used by the hobby media people for their magazine or newsletter articles. The filling out of this questionnaire will be completely voluntary.

(7) No **safety inspections** will be made as such. You signed a safety declaration as part of your entry form and as such, you are responsible for the safety and airworthiness of your aircraft. On the flight line, every time you go to fly, you must demonstrate that you have control of the model by moving and calling out LEFT, RIGHT, UP, DOWN and motor "burp".

(8) **Flying will be with three one-hour rounds** for each AMA event. The flight for each round must be completed before the round time ends. (Each ED may increase the one hour window because of contestant numbers. They will make this change known at the pilots' meeting, but the window, in which the round flight must be completed, will not be less than one hour.)

(9) For each AMA event, the **point scoring** will be by direct arithmetic. The sum of flight times expressed as points, plus the spot landing bonus points, if any, will equal the round points. The sum of the three round points will equal the contest total. The contestant with the highest total for three rounds will be the overall winner.

(10) **Field boundaries** will be established to use as much as possible of the total flying area, commensurate with adequate safety.

(11) **Landings** must be made in a designated area, even when outside of the spot circle. Landings outside the designated area will be scored 0.

(12) **Practice flying** will **NOT** be allowed during the competition.

(13) **Midair Collisions:** In the spirit of "friendly competition" a total makeup flight will be awarded to the contestant or contestants involved in any midair that requires repair or replacement of the aircraft. That round will be

considered not to have been flown until, and if, the contestant is able to continue. The window for individual contestants involved in a midair will be lengthened to a reasonable time (to be determined by the ED) to repair and/or recharge the motor battery of the existing aircraft or to prepare (meaning to charge the battery pack) a backup aircraft. Pilots must immediately notify the ED, NEAC Nat's coordinator or any working volunteer of any midair involvement. For safety reasons, the ED or NEAC Nat's coordinator **MUST** okay the continuation of the flight of any aircraft involved in a midair. The decision will be final. If the ED or NEAC Nat's coordinator makes an aircraft land, that round will be considered not to have been flown until, and if, the contestant is able to continue safely, as stated before.

(14) **Backup Aircraft** may be used if the ED or Nat's coordinator has decided that the primary model is unsafe to fly because of extensive damage. If the damage is minor, contestants are expected to fix the primary model. If the backup ship is allowed to be flown, the primary ship **cannot** be flown again, even after repairs are made. Any model can be used as a backup, as long as it meets event requirements.

**PROPOSED NEW EVENTS:** (aka non-AMA events)

#### **SPEED-400 PYLON RACING:**

An excellent write-up on this event appears in the new MODEL AIRPLANE NEWS, "R/C PILOT'S HANDBOOK" (pages 121 to 124). The article was written by Event Director, Tom Hunt Basically a two pylon race course will be set up with the pylons approximately 300 feet apart. Far turn pylon callers will be required. A race will consist of 10 laps around the course. Motors will be limited to a **maximum** of SPEED-400 or RS-380 types. They may be direct or gear driven. Battery pack is limited to 7 cells. There are no restrictions on model size, type or weight. Typical kits for these little racers are available from New Creations R/C (Kirk Massey 409-856-4630), Salt Creek Auto (Steve Chapman 800-359-0233) and from Hobby Lobby (Jim Martin 615-373-1444). Typical wing areas are around 150 - 175 square inches with all up weights of about 16 ounces.

#### **Class 1/2 A ELECTRIC SAILPLANE**

There will be a two minute motor run with which to make a total 8 minute max flight (precision), plus spot landing bonus points, exactly as done in the "AMA Events". Scoring will be on the sum of three flights. Motor **maximum** is limited to the SPEED-400 or RS-380 either direct or geared. Battery is limited to 7 cells.

#### **1/2A ELECTRIC TEXACO EVENT**

This event may, will for this first year, take two different forms:

Most modelers like the idea of using stock 300 square inch SAM type 1/2A Texaco models, because there are many kits and plans available. The limitation is a **maximum** of a SPEED-400 or Mabuchi RS-380 (direct or geared). From this point the concept tends to differ with the factions. One faction would simply like to limit the plane to a 7 cell 500 mAh battery pack, but since 500 mAh cells are hard to get hold of, **we will also accept 600 mAh** cells in this event. The idea, as in the present SAM Electric Texaco event, is to be able to use the battery pack until exhausted of charge. You may use a speed controller to reduce or turn off motor power at will during the flight, pursuing a total of two 15 minute maximum flights.

The other faction would like to see something like the Spirit of SAM event where the battery pack is limited strictly by weight to a maximum of 4.0 ounces.

Both types will be welcomed at Muncie for a trial run. (Certificates will be awarded in both classes.)

\* \* \* \* \*

**Entry Forms** and information packets are available from the AMA Competitions Department (317) 287-1256 or 5151 E. Memorial Dr., Muncie, IN 47302.

**Entry forms postmarked after May 20, 1996 must include late registration fee of \$25.** Requests for refunds must be in writing and postmarked by May 20, 1996. **ABSOLUTELY NO REFUNDS AFTER MAY 20, 1996.** Be sure to save yourself \$25 and preregister!!!

#### **NATS HOTELS & RATES**

Be sure to mention your AMA membership to receiver the special rates!

Radisson Hotel Roberts  
317-741-7777  
\$45 Standard, \$59 Suite

Ramada Inn (formerly Holiday Inn)  
317-288-1911  
\$45 Standard

Amerihost Inn  
317-282-0600  
\$51.00 King, \$55 Double

Signature Inn  
317-284-4200  
\$58.00 Single or Double

Lees Inn  
317-282-7557  
\$59.00 Single or Double

**News From Arizona**

from: Steve Gurley

March 2, 1996

Dear Ken,

It's been entirely too long since I've written to you, which is completely my fault. I've been pretty busy lately, and just two weeks ago, I guess I was pushing a little too hard and I ended up in the hospital with a heart attack. I'm just fine now after an Angioplasty in one of the three main arteries to the left side of my heart. I'll get a complete prognosis next week after my second visit to the Cardiologist. Anyway, I'm cutting way back on projects, which is allowing me to part with some "excess inventory" which accumulated over the years, and which I will not continue with, in an effort to slow down a little. I guess you can do too much sometimes, even with hobbies you love. Believe it or not, I will still have an "Air Force" of 7 flying electric airplanes left, so it's not like I'm completely getting out of the hobby.

I would hope that you might see your way clear to publish my "FOR SALE" list in the Ampeer. All items are as described, and a considerable savings over even discounted prices and almost 75% off of list prices.

Thanks in advance, and my best wishes for blue skies and smooth flying!

Warmest Regards,  
Steve Gurley

Inquiries to: Steve Gurley 602-921-7989 or FAX 602-921-8290; 1104 East Campus Drive, Temp, AZ 85282-3913

Page: 1-800-946-4646 PIN: 1092284 & leave return #.

Internet address: yelrug@ix.netcom.com (all lower case)

Items may be picked up or will accept MO or Check or UPS Collect only.

This list contains both new in box and used Astro Motors, Futaba and other brand Servos, as well as Speed Controls and Peak Chargers for flight systems.

**MOTORS**

2 ea. Astro 10Turn 15 size Geared Motor little used, and reconditioned. 75.00 ea

1 ea. Astro 60 Geared Motor, NEW in Box with new Astro #704 Helical Gearbox. 175.00

1 ea. Astro 05, 7 Turn Geared Motor, New in Box 65.00

2 ea. Matched Astro FAI Modified Racing Motors for Ducted Fans 5 Turn #18 w/3/4 Magnets. NEW

2 ea. Astro 035, 7 turn Direct Drive Motors. New in Box 60.00 ea.

2ea. Matched Pair of Astro FAI 05's with full Stage 5 Modifications by "New Creations IL/C" Perfect for Small Ducted Fans or other High Speed use. Rebuilt, Like New. 70.00ea.

1 Astro 40 Geared motor. Little Use, excellent Condition 85.00

**SPEED CONTROLS**

1 Astro 205 Speed Control, Factory Reconditioned. 50.00

2 Jomar SC 6 Speed Controls 50 Ampere, 12 to 30 cells. One new, One Used & Factory Reconditioned 40.00 ea

1 Astro 210, 45 ampere High Rate Speed Control, New 40.00

**SERVOS**

2 JR NES 505 Std. Servos used, good cond. 4.00ea

2 JR NES 506 Std. Servos, used good cond. 4.00ea

2 Royal Titan Mini Servos, Used, good cond. 4.00ea

1 Multiplex Micro MPX BB Servo used ok cond. 5.00

3 Futaba S-148 Std. Servos, Used little, Excellent 7.00 ea

3 Futaba S133 Micro Servos, New in Pkg w/ acces. 20.00 ea

10 Futaba S133 Micro Servos, little used, exe. cond. 10.00 ea.

**CHARGERS & MISC.**

2 Ace Digipace Digital Peak Chargers w/trickle. 60.00 ea. used but in excellent condition.

1 AstroFlight AC/DC # 111 Charger used, exc. cond. 40.00

4 Morley Ducted Fans. 2, New in Box, 2 used. new- 25.00 ea. used 10.00 ea.

**AIRPLANE KITS**

2 Midwest Electric Hots kits, New In Boxes. 35.00ea.

1 Kraft Electric Chipmunk 30.00

1 PS Flier 78" Sport Trainer 2 or 3 channel 25.00

**March EFO Meeting**

The March meeting, at Ken's house, was relaxing and informative. The members talked about their latest projects and there was a "mock-up" of a future effort by Don Skiff. Ernie got some his advice on Beech 18 and Jeff told us about his P-47, now well under construction.

Ken took the members on a tour of the InterNet, CompuServe and the MicroSoft Network. He showed them his homepage and how he created it using the CompuServe software.

Refreshments were served and most folks seemed to have a great time, since they hung around until 11. What a great night! See ya all at the Dublin Community Center on April 4.

## Important -Big ERROR

The KRC dates on this page are correct! Any other dates I've published were WRONG. I am sincerely sorry for a problems this may have caused you! km

### Ampeer On-line Print Problem?

from Ted Capron

*(Some of you have noted a problem printing the Ampeer on HP deskjets. Maybe a tip from Ted will help. km)*

After down loading this file I was able to print March out on my Hewlett Packard 560C by making the following modifications to the HP 560C Windows 95 driver: Bring up the HP 560C driver (under Windows 95), under properties, click on details- spool settings and check box to print direct to the printer. When printing the Adobe Reader, do not have page size change- checked!

### EFO Members

**Your dues are due! Try to get them to Debbie ASAP or bring to the next meeting.**

### Upcoming Events:

**April 12-14** Toledo R/C Expo (need I say more!)

**May 18/19** Memphis in May Fly-In, LMR events, All Up/Last Down, & more, Bills Jenkins (901) 362-2119

**June 1/2** Mid-America Electric Flies, Saline, MI, Relaxed Fun Flying, All Up/Last Down, special awards, Ken Myers, (810) 669-8124 CompuServe 102575,3410 or InterNet 102575.3410@compuserve.com (NOTE: event moved to June this year)

**June 15 through June 23**, 3rd Annual Electric Duration Challenge, any flat field in the US or its territories, Jerry Smartt, (816) 438-5682 (See rules March Ampeer)

**June 29**, 9th Annual NCRCC Electric Fun-Fly, Ron Torrito, (203) 528-2227 Hartford, CT area

**July 20-22** Electric Nationals, AMA Headquarters Site, contact Ken Myers

**Sept. 20/22**, KRC Electric Fly-in, Quakertown, Pa. (please note I had wrong dates earlier - these are correct!)



The Ampeer  
Ken Myers  
1911 Bradshaw Ct.  
Walled Lake, MI 48390

**Next Meeting:**

**Thursday, April 4 - 7:30**